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Summary of Milestone Report

Without large amounts of imported water, Southern California could sustain less than half of its current population and industry. This fact, and the recent drought, point to the need to keep local water supplies wholesome for drinking, recreation, fishing and maintenance of aquatic life.

Water pollutants are most easily divided into nine categories:

- o oxygen-demanding wastes
- o infectious agents
- o nutrients
- o inorganic chemicals and minerals
- o heavy metals
- o synthetic organic components
- o sediment
- o radioactivity
- o heat

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Some sources of pollution can be easily identified: discharges from sewage treatment plants, industries and power plants. These are called "point sources", and these are under strict regulatory control. Water quality improvement programs now must look also at "non-point" sources of pollution -- streets, farms, landfills, eroding areas and other sources not easy to pinpoint.

INTRODUCTION

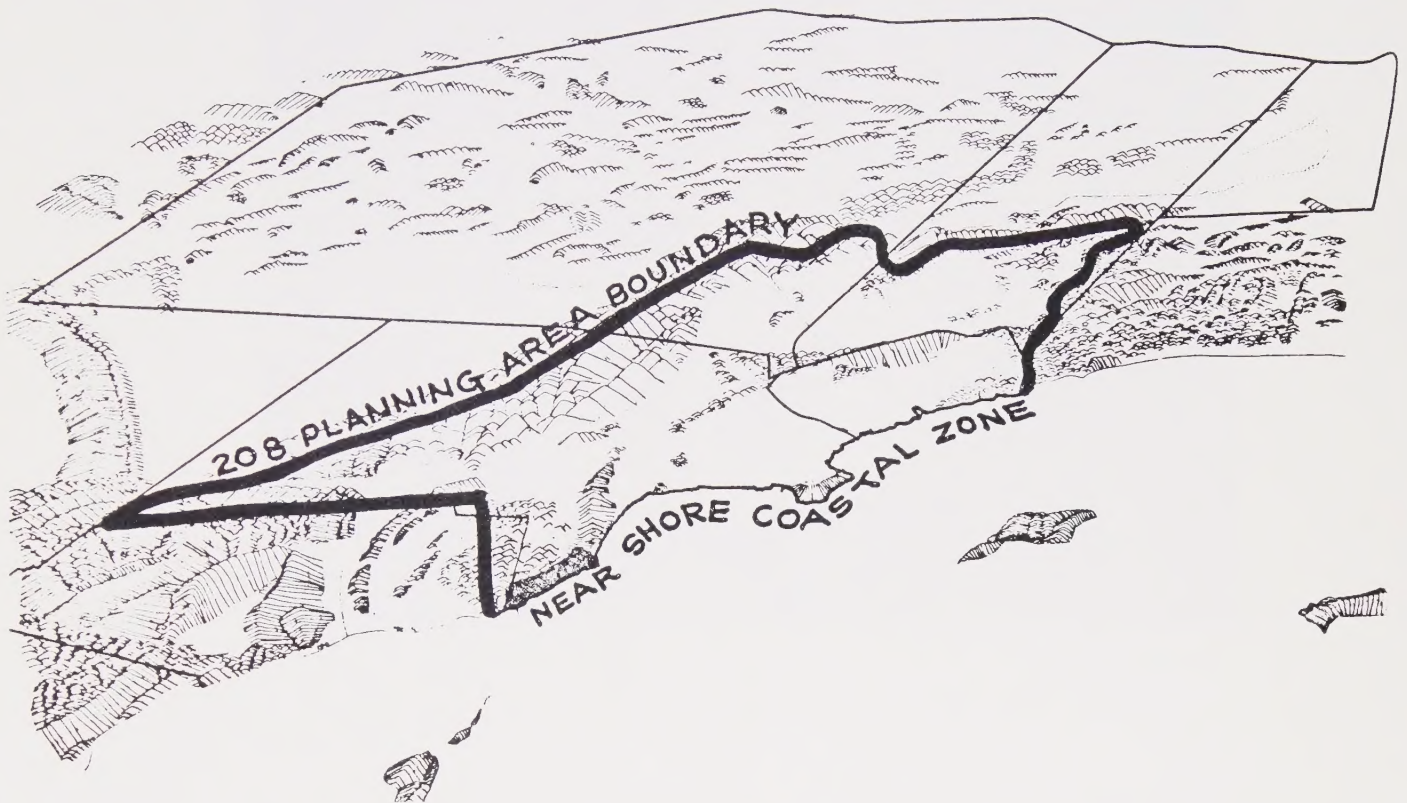
The Southern California Association of Governments (SCAG) is currently preparing a 208 Areawide Waste Treatment Management Plan for the South Coast area. 208 is the number of a section of the Federal Water Pollution Control Act Amendments of 1972. The section legislates that local governments plan how water pollution will be controlled in their area. SCAG has contracted with the following agencies to help develop the 208 Plan: the City of Los Angeles; the Counties of Los Angeles, Orange, Riverside and San Bernardino; Ventura Regional County Sanitation District; Newport-Irvine Waste-Management Planning Agency; and the Santa Ana Watershed Project Authority. In addition, the Los Angeles, Santa Ana and San Diego Regional Water Quality Control Boards are preparing portions of the plan under formal agreement with SCAG. Three Committees (Citizens Advisory, Program, Environmental Quality and Resource Conservation) advise and direct the 208 Program staff, with ultimate decision-making authority resting with SCAG's Executive Committee.

This document is a summary of background data collection and problem analysis conducted during the first phase of 208 planning. Part I of this summary describes water quality problems and issues and Part II presents other background information needed for water quality planning. A technical summary of this information (Milestone Report-A Regional Profile) is also available from SCAG upon request.

Important Facts

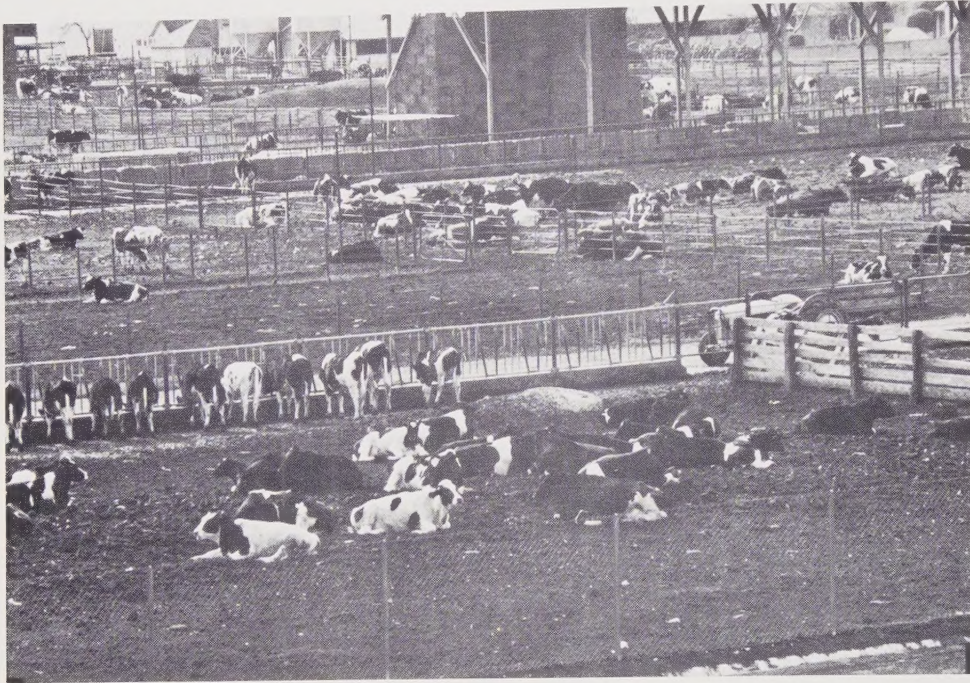
AREAWIDE	Five counties: Los Angeles, Orange, San Bernardino, Riverside, Ventura
WASTE	Sewage, urban runoff, agricultural wastes, sludge, industrial wastes, septic tank seepage, soil erosion runoff
TREATMENT	Wastewater treatment plants, soil erosion controls, sludge disposal methods, feed-lot and industrial waste control, control of urban and rural runoff pollution, land use regulations
MANAGEMENT	Identify who will operate the treatment works; how they will be funded, coordinated and controlled. If regulations are needed, who will manage the regulatory program?
PLANNING PROGRAM	What's needed? When, how and at what costs? How effective will it be?

The South Coast 208 planning area boundaries consist of a combination of political and watershed boundaries. The planning area is shown on the following map.



SELECTED PROBLEMS FOR EARLY ACTION

Control measures for selected water quality problems in the South Coast area have been designed and are under consideration for implementation. These representative water quality problems consist of (1) nutrient flows to Sulphur Creek Reservoir, (2) sewage sludge disposal in the San Diego Creek Watershed, (3) dairy wastes in the Ontario-Chino-Corona area and (4) the unsewered community of Rhodelia Avenue.



PRIORITIES FOR ACTION

Priority water quality problems and issues for 208 planning in the South Coast area were selected and ranked on the basis of three criteria: seriousness, representativeness and achievability of solution in the near future. This process took place over several months in early 1977, and involved the 208 Citizens Advisory Committee, the 208 Program Committee and the Environmental Quality and Resource Conservation Committee.

Problems and issues selected for inclusion in the "Priority Action Program" of 208 planning are (1) Newport Bay, (2) wastewater reclamation planning in the South Coast area, (3) waste treatment management in unsewered areas in Los Angeles County, (4) municipal and industrial sludge management in the Los Angeles County/Los Angeles City/Orange County Metropolitan area and (5) interactions between sewage treatment plant capacity and air quality maintenance.

PART ONE: WATER QUALITY PROBLEMS AND ISSUES

WATER QUALITY PROBLEMS

Water quality problems in the South Coast Area include those areas where water quality standards are presently not being met or where they may potentially not be met. The management of these areas involves identification of sources and impacts of pollution, development of control measures and establishment of monitoring programs to attain and maintain water quality standards. Marine, surface and groundwater quality problems in the South Coast area are reviewed below; the following table shows the types of pollution sources contributing to present and potential problems in several water bodies in the South Coast area.

Marine Water - includes coastal wetlands and estuaries, harbors and bays, nearshore and offshore regions of Los Angeles and Orange Counties. The marine environment is affected by both point and nonpoint sources of pollution. Improving current urban housekeeping practices (such as street cleaning programs) could help reduce urban runoff contaminants and prevent them from reaching the ocean.

Direct impacts to the marine environment from point and nonpoint sources are hard to assess and can only be expressed in general terms. Research in this area has expanded greatly during the past decade, and commitments have been made by research institutions to continue this pursuit. Additional areas of research are still necessary, in particular, effects of toxic and hazardous substances on marine ecosystems.

Surface Water problems are caused by both point source discharges and by nonpoint sources, mostly surface runoff. Surface waters include streams, freshwater lagoons and lakes. Surface runoff in various locations contributes bacteria, excess nutrients and sediments which can degrade water quality and harm aquatic life.



Groundwater problems are mostly high concentrations of total dissolved solids and nitrates caused by excessive fertilization, septic tank effluent natural geology and salty water supplies. Current methods of dealing with groundwater problems include: (1) blending degraded water with higher quality imported water to achieve acceptable water quality, (2) abandoning wells where water quality objectives are not being met, (3) using good quality imported water for drinking and (4) water conservation to reduce excessive groundwater pumping. Other possible solutions include: (1) management of irrigation and fertilizing practices and solid waste disposal, (2) treatment of groundwater before domestic use, (3) treatment of wastewater before recharge to groundwater, (4) selective well drilling and casing in unaffected aquifers and (5) when justified, elimination of septic tanks in areas of high nitrate concentrations.



NONPOINT SOURCE ASSESSMENT

Pollution of water by specific nonpoint sources is often difficult to trace, since nonpoint sources are by definition diffuse. For this reason, it is important to understand the origins of nonpoint source pollution so that preventive control steps can be taken. Nonpoint sources of pollution include contaminants picked up by urban runoff, agricultural activities, residual wastes disposal, unsewered communities and saltwater intrusion. The following table shows the known or suspected source of pollutants which may be creating water quality problems in selected water bodies.

Urban Runoff

Over one million acres (or about 1560 square miles) in the South Coast area are urban. Surface runoff from urban areas is a significant contribution to nonpoint source water quality problems, and as urban land use continues to increase without adequate controls, urban runoff will be a growing problem to water quality management during the next two decades.

Nonpoint source pollutants accumulate until they are washed or blown away. A large portion is washed into the urban storm drainage system and eventually reaches receiving surface or groundwater bodies. Wasteloads in urban runoff depend upon storm characteristics and other physical parameters such as land use, climate, traffic, street surface material and number of days since the last rain.

Agricultural Activities

Pollutants which can originate from agricultural sources in the South Coast area include salts, nutrients, biochemical oxygen demand (BOD), silt, pesticides, heavy metals and bacteria. In the Upper Santa Ana Watershed (Riverside and San Bernardino Counties), salinity is the major water quality problem caused by agricultural activities, followed by BOD and sediments. In Orange County, the principal pollutant from agriculture is sediment caused by sheet erosion.

Erosion

The loss of soil through the processes of water and wind erosion may contribute heavily to degradation of aquatic habitats. Any man-made or natural condition which bares soils to direct water and wind exposure will undergo various degrees of erosion dependent upon physical and climatic variables. Pollutants such as oil, grease, trace metals, nutrients and pesticides may adhere to soil particles and be carried by water.

Aerial Contributions

The transport of airborne heavy metals, biocides and nutrients to a watershed area occurs in the following three forms: dry deposition of suspended particulates, dry deposition of atmospheric aerosol and wet deposition. Wet deposition involves the scavenging of aerosol and gases from the air and transport of the pollutants to the ground by raindrops. The rain washes some of the aerosol and gaseous products that were deposited on the surface during dry periods and adds these pollutants to the runoff.

Saltwater Intrusion

There are nine groundwater basins in the South Coast area which are subject to saltwater intrusion. In many cases, extensive and continuous use of these basins for municipal, industrial and agricultural water supplies has lowered groundwater levels and resulted in saltwater intrusion into the freshwater aquifers.

In Los Angeles County, there are two major basins subject to saltwater intrusion: the West Coast Basin and the Central Basin. Major corrective programs have successfully halted seawater intrusion into these two basins. Freshwater injection barrier projects counteract the flow of saltwater into the basins, and groundwater management programs control groundwater extractions.

In Orange County, there are basically two gaps where saltwater intrusion is a serious problem - the Santa Ana (Tabert) Gap and the Los Alamitos Gap which affect the East Coastal Plain Pressure Area Basin and the West Coast Basin, respectively. The existing Orange County Coastal Water project has been effective in controlling the intrusion in the Santa Ana Gap. The Alamitos Barrier Project, however, has not been totally effective.

Selected Water Bodies in the South Coast Area versus Point and Non-point Sources of Pollutants

NOTE: "X" indicates a known or suspected source contributing to an existing or potential water quality problem.

	POINT SOURCES	Municipal Discharge	Industrial Discharge	Thermal Discharge	NON-POINT SOURCES	Urban Runoff	Rural Runoff	Agricultural Activities	Construction Activities	Recreational Activities	Septic Tanks, Unsewered Communities	Wild Fires	Oil Fields	Vessel Wastes	Saline Water Intrusion	High TDS Water Supply
SURFACE WATERS																
Big Bear Lake					X	X				X	X	X				
Coyote Creek		X	X		X			X			X					
Lake Elsinore						X	X			X	X			X		
L.A.-Long Beach Harbor		X	X	X	X									X		
Malibu Creek		X			X	X	X			X	X					
Mountain Watersheds						X		X	X	X	X	X				
Nearshore Zone		X	X	X	X	X	X						X	X		
Newport Bay		X	X		X	X	X	X	X					X		
Salt Creek						X		X								
San Joaquin Marsh																X
San Juan Creek					X	X	X									
Santa Ana River		X	X		X	X	X									X
Santa Monica and San Pedro Bays		X	X	X	X								X	X		
Sunset/Huntington Harbour					X		X						X	X		
GROUNDWATERS																
Aliso Creek Basin																X
Coastal Aquifers										X					X	
San Juan Creek Basin								X		X						X
Santa Ana River Basin								X		X					X	X
Upper L.A./San Gabriel River Basin								X		X						
Upper Santa Clara River Basin													X			

MAJOR WATER QUALITY ISSUES

The following is a list of summary statements of major water quality issues for use in areawide policy development.

MANAGEMENT

INSTITUTIONAL ARRANGEMENTS AND MANAGEMENT SYSTEMS FOR
AREAWIDE WATER QUALITY MANAGEMENT

AN AREAWIDE WATER QUALITY MANAGEMENT STRATEGY INTEGRATING
POINT AND NONPOINT SOURCE CONTROLS

COORDINATION OF WATER QUALITY RESEARCH AND MONITORING
ACTIVITIES WITH WATER QUALITY MANAGEMENT PLANNING

PREVENTIVE AND PROTECTIVE APPROACHES TO WATER QUALITY
MANAGEMENT WHICH MINIMIZE THE ENTRY OF POLLUTANTS TO
RECEIVING WATERS

PLANNING

PREVENTING AND CONTROLLING NONPOINT SOURCES OF POLLUT-
ION THROUGH LAND USE PLANNING AND CONTROL

PROTECTION OF ENVIRONMENTALLY SENSITIVE LANDS TO PREVENT
WATER QUALITY PROBLEMS, INCLUDING PROTECTION OF LAND
OVERLYING AQUIFERS FOR RECHARGE PURPOSES

CONSISTENCY OF WASTEWATER MANAGEMENT PLANNING WITH
AREAWIDE GROWTH POLICIES AND DEMOGRAPHIC PROJECTIONS
PROJECTIONS

MITIGATION OF GROWTH-RELATED AIR IMPACTS OF MUNICIPAL
SEWAGE TREATMENT FACILITIES

CONSERVATION AND RECLAMATION

INSTITUTIONAL, LEGAL, SOCIAL AND POLITICAL BARRIERS TO
INCREASED REUSE OF MUNICIPAL WASTEWATER, INCLUDING EQUITY
CONSIDERATIONS

MONITORING AND CONTROLS FOR WASTEWATER RECLAMATION
PROJECTS

EMPHASIS ON WATER CONSERVATION AND RECLAMATION IN WASTE-
WATER FACILITIES AND WATER SUPPLY PLANNING

POINT SOURCE CONTROLS

COMPLIANCE OF MUNICIPAL AND INDUSTRIAL DISCHARGES WITH
FEDERAL AND STATE DISCHARGE REQUIREMENTS FOR MUNICIPAL
AND INDUSTRIAL DISCHARGES

POINT SOURCE CONTROLS (Continued)

ALLOCATION OF LIMITED STATE AND FEDERAL GRANTS FOR
SEWAGE TREATMENT TO THE REGION (LEVEL OF FUNDING)

LEVEL OF TREATMENT FOR WASTEWATER DISCHARGED TO THE
OCEAN

INDUSTRIAL PRETREATMENT PROGRAMS TO PREVENT ADVERSE
EFFECTS OF TOXIC POLLUTANTS

STRATEGIES FOR SLUDGE RESOURCE RECOVERY OR DISPOSAL

EQUITABLE FINANCING MECHANISMS FOR MUNICIPAL WASTEWATER
SYSTEMS (USER CHARGES, INDUSTRIAL COST RECOVERY)

ALTERNATIVE MANAGEMENT STRATEGIES FOR ON-SITE WASTEWATER
TREATMENT AND DISPOSAL

NONPOINT SOURCE CONTROLS

PREVENTIVE MANAGEMENT STRATEGIES FOR CONTROL OF
POLLUTANTS IN STORMWATER RUNOFF

INTEGRATION OF WATER QUALITY GOALS IN STORMWATER SYSTEMS
PLANNING AND OPERATION

INTEGRATION OF WATER QUALITY GOALS IN RESIDUAL WASTE
SYSTEMS PLANNING AND OPERATION

PREVENTIVE MANAGEMENT STRATEGIES FOR RUNOFF AND EROSION
CONTROL AT CONSTRUCTION SITES

PREVENTIVE MANAGEMENT STRATEGIES FOR CONTROL OF
AGRICULTURAL SOURCES OF POLLUTION

PREVENTIVE MANAGEMENT STRATEGIES FOR MISCELLANEOUS
NONPOINT SOURCES OF POLLUTION (AERIAL FALLOUT, SALINE
WATER INTRUSION, SILVACULTURE AND MINING)

FINANCING AND NEEDED REGULATORY AUTHORITY FOR PLANNING
AND IMPLEMENTATION OF BEST MANAGEMENT PRACTICES FOR
NONPOINT SOURCE POLLUTION

SULPHUR CREEK RESERVOIR, Laguna Nigel area, Orange County



PART TWO: PLANNING FRAMEWORK

PRESENT INSTITUTIONAL SITUATION

- o The South Coast Area has an extremely complex institutional framework for water quality management, perhaps one of the most complex in the nation. It consists of interactions between numerous federal, state, regional and local agencies. Local agencies are represented by over 120 cities, 5 counties and over 250 water quality related districts.
- o Given the diffusion of water quality responsibilities among numerous agencies on several levels of government, the South Coast water quality management institutional framework is fragmented. Fragmentation, in and of itself, is not necessarily a flaw in the institutional framework, as long as water quality responsibilities are sufficiently coordinated between agencies and directed toward common goals and objectives. This is not always the case, however.
- o The institutional structure for wastewater treatment is centralized in Orange and Los Angeles Counties among three large sanitation entities: the City of Los Angeles, the Los Angeles County Sanitation Districts and the Orange County Sanitation Districts. Wastewater treatment responsibility in the less urbanized counties of Riverside and San Bernardino is spread among several smaller districts and general purpose governments.
- o The focus of water quality management generally has been on the control of point sources of pollution (those where a specific source, such as a power plant can be identified). More recently, there has been a growing awareness of the significance of nonpoint source pollution. There is currently no single management system in the South Coast Area for control of nonpoint source pollution (that which has no specific source, such as saltwater intrusion into groundwater).
- o Responsibility for nonpoint source pollution control is diffused among numerous local, regional, state and federal agencies.
- o Water quality management is only part of water resources management, which in turn is only one part of overall environmental management. Water supply, water quality control and flood control are interdependent activities. The functioning of these management activities should be based on consistent objectives to assure integration.



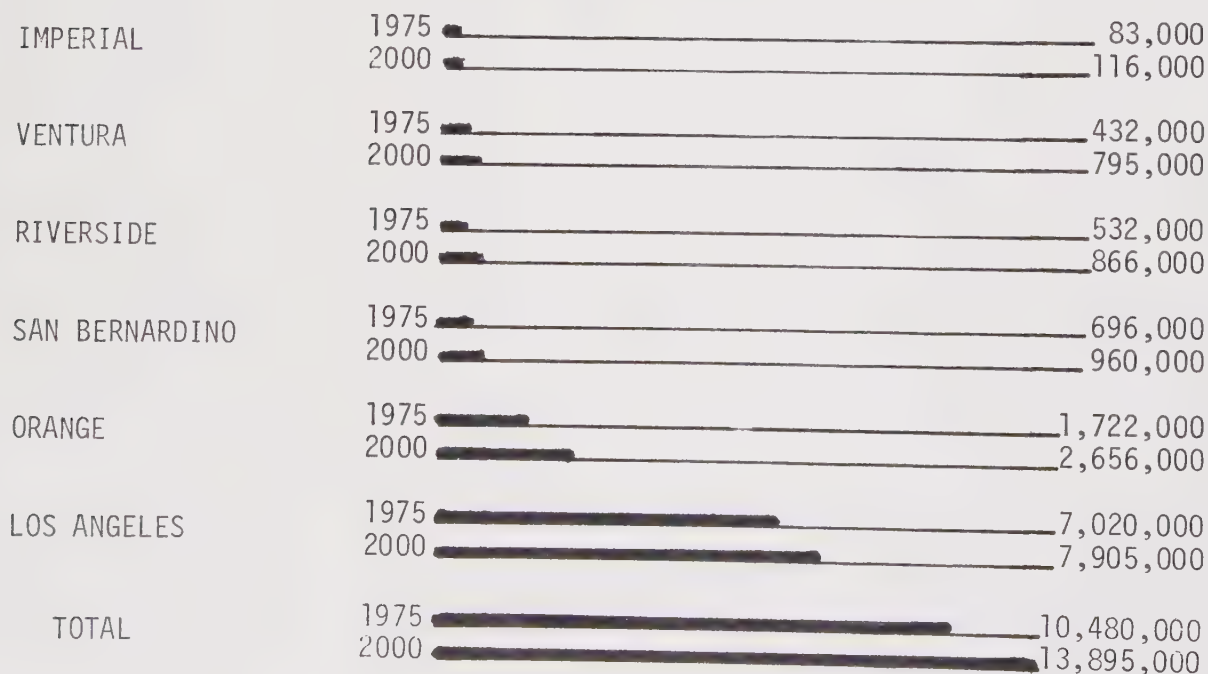
REGIONAL POPULATION FORECAST

In 1975, about 10 and one-half million people lived in the SCAG region. Most of the population resides in Los Angeles County (about 67%), with the remainder in Orange County (about 16%), San Bernardino County (about 7%), Riverside County (about 5%), Ventura County (about 4%) and Imperial County (about 1%). The baseline (working) population forecast for the year 2000 indicates that the total population of the six-county SCAG region will increase to 13,000,000, an increase of about 27% over 1975. A final forecast for the 2008 plan and other SCAG plans will be selected in the spring of 1978, after analysis of the environmental and socio-economic impacts of alternative growth forecast policies.

Although the South Coast 208 planning area has about one-sixth the total acreage of the SCAG region, in 1975 it contained about 92% of the population of the SCAG region, or about 9,619,000 people. The baseline forecast for the South Coast planning area shows an increase from 9,619,000 people in 1975 to 11,798,000 people in the year 2000, a 23% increase.

Future growth will tend to worsen some of the known water quality problems and will increase wastewater generation and water demand.

COUNTY POPULATION FORECAST SCAG-76 MODIFIED



EXISTING WASTEWATER, WATER SUPPLY AND STORMWATER MANAGEMENT

Wastewater

Numerous special districts and local governments in the South Coast area provide wastewater collection, treatment and disposal/renovation services. The 208 Plan will include a municipal facilities element identifying 20-year wastewater systems needs consistent with regional growth projections.

Los Angeles/Ventura County Planning Area: Wastewater services for most of the population are provided by the Los Angeles County Sanitation Districts Joint Outfall System which includes the Joint Water Pollution Control Plant in Carson, and the City of Los Angeles' Hyperion Treatment Plant and Los Angeles Glendale plant. Other major wastewater treatment plants are those operated by the City of Burbank, the City of Los Angeles' Terminal Island Treatment Plant and the Tapia Treatment plant servicing the Las Virgenes Municipal Water District and Triunfo County Sanitation District (Ventura County).

Orange County: Most of the population in Orange County, located in the north and central parts of the county is sewered by two plants operated by the County Sanitation District of Orange County. Other wastewater management agencies servicing southern Orange County are the Aliso Water Management Agency, the Irvine Ranch Water District and the Southeast Regional Reclamation Agency.

San Bernardino County: Wastewater services for most of the County are provided by the Chino Basin Municipal Water District and the City of San Bernardino. Other major treatment plants are operated by the Cities of Fontana, Rialto, Colton and Redlands, and by the Big Bear Community Service District.

Riverside County: Most of the population in Riverside County is served by the City of Riverside and City of Corona Treatment Plants. The San Jacinto area is served by the Eastern Municipal Water District.

Water Supply

Imported water supplies from the Colorado River, Owens River System and State Water Project provide the major supply of water to the South Coast area, augmenting the



local surface and groundwater supplies. Wastewater renovation and conservation efforts are also utilized in various areas to help reduce demands on imported supplies.

The three aqueduct systems to the South Coast are: (1) the Owens River Los Angeles Aqueducts, (2) the Metropolitan Water District of Southern California Colorado River Aqueduct and (3) the California Aqueduct of the State Water Project. Within each service area complex water storage and distribution networks supply the numerous municipal, industrial and agricultural water users. Reviewed below is an overview of the water supply system in the South Coast area.

City of Los Angeles

The City of Los Angeles, which is served by the Los Angeles Department of Water and Power, has three sources of water; local groundwater, imported water delivered by the Los Angeles Owens River Aqueduct from the Owens Valley and the Mono Basin and imported water purchases from the Metropolitan Water District of Southern California. Owens Valley water comprises nearly 80% of the total supply, and purchase from the Metropolitan Water District comprises about 3%. The City of Los Angeles has experienced a slow population growth trend in recent years. For this reason, no major expansion programs or projects are in progress at this time.

Los Angeles/Ventura Counties

As of 1975, approximately 48% of the water supplies for the planning area were obtained from local groundwater basins. The remaining 52% are supplies imported from the Owens Valley, Colorado River and Northern California. To augment the existing water supplies within the planning area increased wastewater reclamation facilities are being proposed.

Orange County

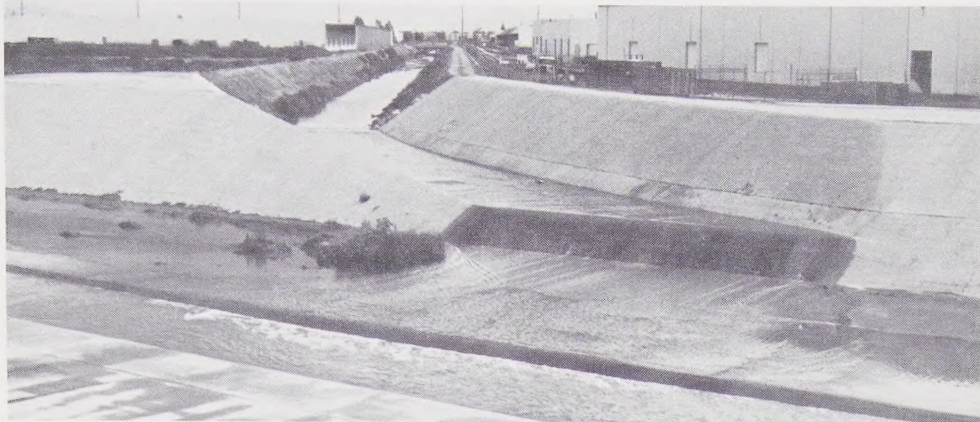
Local sources of water presently provide 23% of the total water supply for Orange County. Most of this local supply is from the coastal plain groundwater basin. Those areas outside the coastal plain are almost totally dependent upon imported water which now provides 77% of total county demand.

Riverside and San Bernardino Counties

Local sources from direct precipitation supply roughly 40% of the total applied water requirement. Imported water accounts for another 26% and the remaining 34% is supplied from recycled wastewater and a long-term overdraft of some groundwater subbasins.

Stormwater

Stormwater (rainfall runoff) management falls under the responsibility of county flood control districts together with various city, county, state and federal entities, special districts and developers. Each jurisdiction is serviced by storm drains, debris basins, reservoirs and spreading grounds.



Solid Waste

Landfill sites and solid waste transfer stations exist to handle residual wastes in the South Coast planning area. Energy recovery projects exist on a minor scale and are planned to increase substantially in the future. Also, additional landfill sites will become operational as necessary.

AIR QUALITY

Air pollution is the most commonly acknowledged major environmental problem faced by Southern California. It is crucial that water quality planning take into account air quality impacts and constraints.

While significant progress has been made in reducing high concentrations of pollutants in the South Coast Air Basin, air pollution remains a serious problem. Federal and state air quality standards which have been established to protect public health are violated in many areas of the basin.

Everywhere that trends do indicate near-term attainment of air quality standards, long-term maintenance of these standards is unlikely without additional controls. The Air Quality Management Plan now under preparation by the South Coast Air Quality Management District (SCAQMD) and SCAG will contain these needed measures and set forth a timetable for attainment. If all standards are not met by 1987, Federal funding for the region, including that for sewage treatment plants could be withheld under certain conditions.

The Basin is a designated Air Quality Maintenance area because it does not meet standards for five major pollutants: oxidants, nitrogen dioxide, carbon monoxide, sulfur dioxide and particulates.

WHERE DO WE GO FROM HERE?

The information just summarized was developed by SCAG and participating agencies during the first phase of the 208 Program (Data Collection and Problem Analysis). The second phase of the 208 Program, from October, 1977 through November, 1978, involves development and selection of an Areawide Waste Treatment Management Plan to control both point and nonpoint sources of pollution. Implementable control measures will be developed for specific water quality problems, as well as a plan specifying 20-year needs for nonpoint source controls, wastewater management, stormwater systems and residual waste systems.



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